UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/655,665	09/06/2000	Toshihiro Sasai	80966	8974

20350 7590 10/04/2004

TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER	
TILLERY, RASHAWN N	

ART UNIT	PAPER NUMBER
2612	3

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/655,665	Applicant(s) SASAI, TOSHIHIRO	
	Examiner Rashawn N Tillery	Art Unit 2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 September 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 8* is/are rejected.

7)☒ Claim(s) *6,7 and 9-11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yen et al (US6724945) in view of May et al (US6693668).

Regarding claim 1, Yen discloses, in figure 1, an image processing apparatus for generating new image data having pixel values having all color information for each interpolation point set on a two-dimensional plane, from original image data made up of many pixels which are arrayed in a matrix on the two-dimensional plane and each of which has only a pixel value representing a predetermined color information level obtained by an image sensor having individual color filters, comprising:

a replacement unit (28) for a pixel value of a pixel that needs to be replaced by another pixel value, replacing the pixel value by a predetermined pixel value, adding replacement information indicating replacement of the pixel value to the replaced pixel value and outputting the pixel value as replacement information-added image data; and

an interpolation unit (26) for outputting interpolated pixel values having all color information by interpolating a pixel value at an interpolation point for each color information on the basis of a predetermined arithmetic expression from pixel values of

pixels of the same color falling within a predetermined interpolation region containing the interpolation point among all replacement information-added image data output from the replacement unit, and when replacement information of any pixel used for calculation indicates replacement, using an arithmetic expression different from the arithmetic expression (see col. 3, lines 8-65).

Yen teaches identifying defect pixels during calibration of the imaging device and storing maps of the pixels in RAM 28. Yen does not expressly disclose adding replacement information representing non-replacement of the pixel value to the pixel value when a pixel value of a pixel need not be replaced. May teaches a self-diagnostic image sensor capable of detecting and storing maps of functioning and malfunctioning pixels during manufacturing (see col. 4, line 63 to col. 5, line 12). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yen's device by implementing May's teachings in an effort to accurately detect and correct pixel defects in an imager.

Regarding claim 2, see claim 1 above.

Regarding claim 3, see claim 1 above.

Regarding claim 4, see claim 1 above.

Regarding claim 5, see claim 1 above.

Regarding claim 8, see claim 1 above.

Allowable Subject Matter

Claims 6, 7, 9, 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 6, the prior art does not teach or fairly suggest an image processing apparatus for generating new image data comprising a replacement unit and an interpolation unit, wherein

when target calculation pixels used to calculate the interpolated pixel value include a pixel whose replacement information indicates, an arithmetic expression is used, which has a educed weight coefficient comparing to a normal arithmetic expression for calculating the interpolated pixel value.

Regarding claim 7, the prior art does not teach or fairly suggest an image processing apparatus for generating new image data comprising a replacement unit, an interpolation unit, a compensation value calculation unit and a compensation unit, wherein

when target calculation pixels used to calculate the interpolated pixel value include a pixel whose replacement information indicates, an arithmetic expression is used, which has a educed weight coefficient comparing to a normal arithmetic expression for calculating the interpolated pixel value.

Regarding claim 9, the prior art does not teach or fairly suggest an image processing apparatus for generating new image data comprising a replacement unit, an interpolation unit and a region value calculation unit, wherein

the region value calculation unit sequentially receives pixel values forming the replacement information-added image data output from the replacement unit in parallel with each other by a predetermined number of pixel lines as pixel blocks for single pixel columns to form a sub-matrix from a predetermined number of pixel blocks received successively.

Regarding claim 10, the prior art does not teach or fairly suggest an image processing apparatus for generating new image data comprising a replacement unit, an interpolation unit, a compensation value calculation unit, a compensation unit and a region value calculation unit, wherein

the region value calculation unit sequentially receives pixel values forming the replacement information-added image data output from the replacement unit in parallel with each other by a predetermined number of pixel lines as pixel blocks for single pixel columns to form a sub-matrix from a predetermined number of pixel blocks received successively.

Regarding claim 11, the prior art does not teach or fairly suggest an image processing apparatus for generating new image data comprising a replacement unit, an interpolation unit and a defect information generation unit, wherein

the defect information generation unit uses relative pixel position information with respect to an immediately preceding defective pixel position as information indicating a

defective pixel position as information indicating a defective pixel position of the image sensor to determine whether each pixel forming the original image data is a defective pixel.

Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tabei et al teach a defective pixel correction circuit. Endo et al teach an apparatus for correcting faulty pixel signals. Kohashi et al teach an apparatus capable of compensating fault pixels. Heller et al teach a CMOS device with integrated defective pixel correction circuitry.

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rashawn N Tillery whose telephone number is 703-305-0627. The examiner can normally be reached on 9AM-6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 703-305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RNT

WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600